OPEN SYSTEM ACQUISITION (OSA) CONCEPTUAL PROCESS

OSA Measure of Success

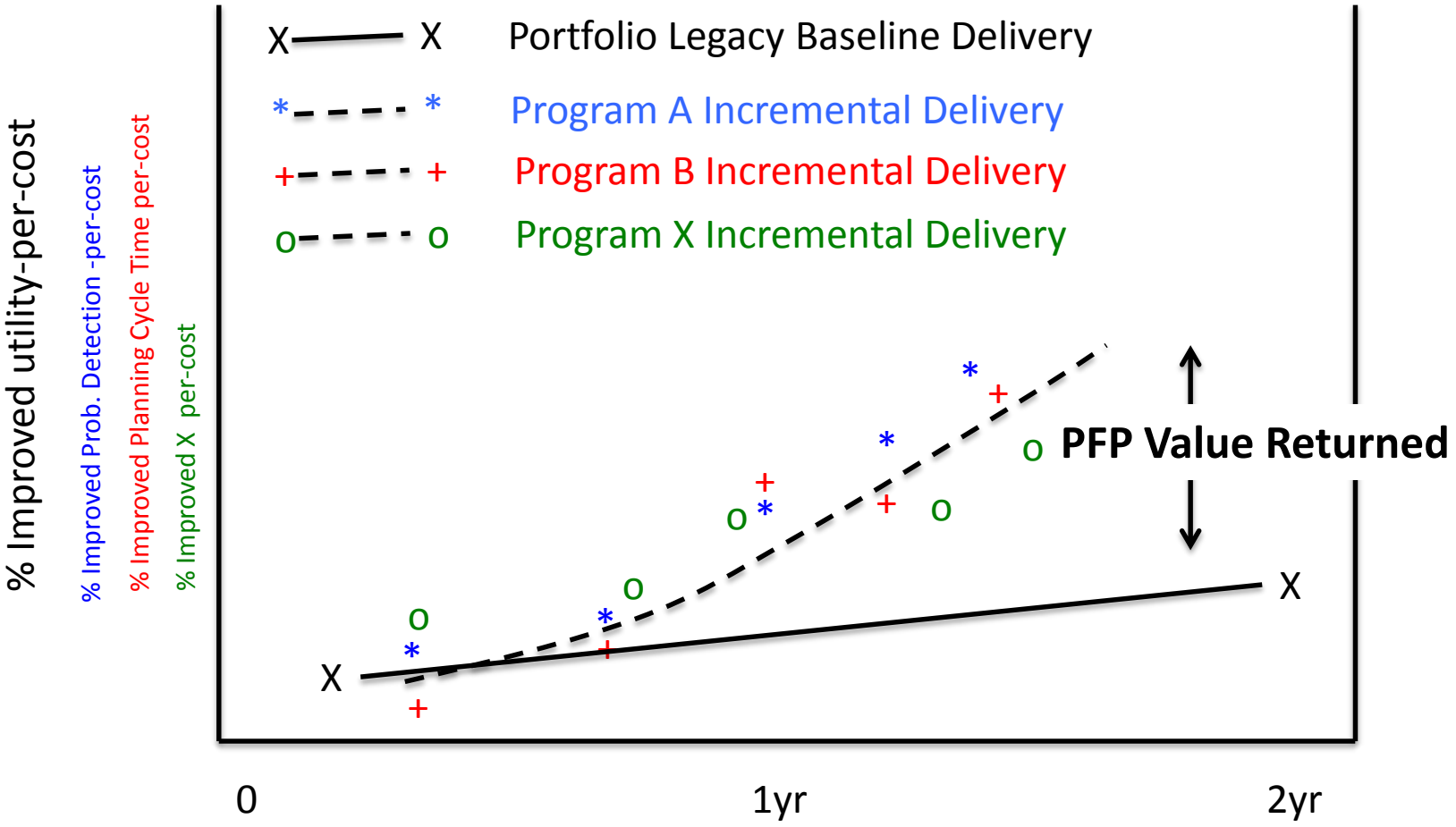
- Goal is more Value Returned = Utility-per-Dollar-Invested, per Time-Spent-Acquiring-Capability. I.e.

$$\text{RoI} = \Delta V = \frac{\Delta u}{c} \times \frac{1}{t}$$

ΔV = Change in Value
Δu = Change in operational metric against baseline
c = Lifecycle cost
t = Acquisition time = contracting + engineering + testing + certifying + etc

- OSA process:
  - Defines, baselines, and tests "utility" in project-specific terms
  - Tests time and cost avoided via plug-and-play open standard approach
  - Documents lifecycle costs associated with tech refresh via off-the-shelf technology offerings
  - Documents time and cost avoided by streamlined procurement per OTA
  - Rolls up "value returned" in a dashboard that spans a project portfolio of interest

Notional PFP Value Returned Across Investment Portfolio



Development Time = Contracting + AoA + Engineering + T&E + Cert + Etc.

OSA OTA Award Process

- Government organization(s) with Other Transaction Authority oversees OTA
- OTA performer is not-for-profit consortium
- Respondents must join OTA consortium
- Government project sponsors issue solicitation per OSA template to OTA consortium
- Solicitations provide objective evaluation criteria
- Respondents provide <5 page white paper
- Sponsors review white papers for gross compliance criteria
- Sponsors may choose to make awards, or narrow competition, based on review of white papers
- Respondents submit candidate technology to Plug Test process
- Plug test objectively evaluates candidate technologies per requirements described in solicitation
- Sponsors select awardees based on Plug Test results
- Sponsors transfer funds via MIPR to government overseer of OTA for transfer to OTA consortium, for transfer to performer(s)
- Future work iterates process

Optional

OSA Statement of Objectives (SOO) Template

- Refers to:
  - Spend plan
  - Metrics, use cases and test cases
  - Risk strategy
  - Intellectual property regime
  - Legacy and to-be technical architectures including esp. Cyber/IA components
  - Prototyping schedule
- Tasks:
  - Demonstration, preferably via PlugTesting, including V&V process and exist criteria
  - Delivered prototype off-the-shelf appliance
  - Technical report of discovered/applied best practices
  - A&A artifacts consistent with dynamic, virtual, IA services
  - Transition plan for evolving OTS capability via tech refresh across its lifecycle

To Be OSA Persistent PlugTest Environment

- Federated cloud host environment, including e.g.
  - Hanscom MilCloud
  - Commercial cloud node(s)
  - Academic cloud node(s)
- Test networks
  - Classified, e.g. DDTE
  - Coalition-restricted, e.g. CFBLnet
  - Open source, e.g. Internet
- Target architecture reference implementation, e.g.
  - Defense Intelligence Information Enterprise (DI2E)
  - USAF Open Mission System (OMS)
  - Future Airborne Capability Environment (FACE)
  - UAV Control Segment (UCS)
  - Ozone Widget Framework (OWF)
- Resource repository, e.g.
  - Data bases
  - Geospatial services
  - Security services
  - Off-the-shelf capability modules
- Test services, e.g.
  - Live, virtual, constructive simulations
  - Conformance tests
  - Load tests
  - SOA tests

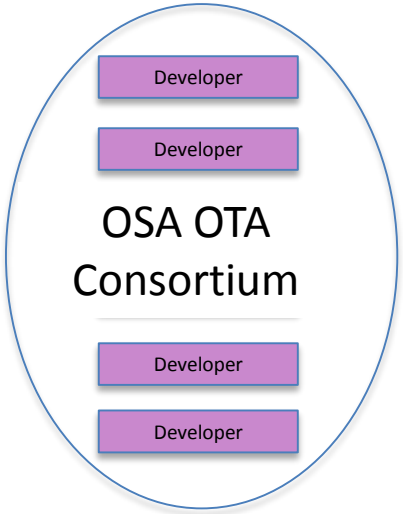
OSA Virtuous Cycle

OTA Oversight

AFRL Rome

Consortium Management

SOSSEC



A not-for-profit, open, Consortium is the OTA performer. SOSSEC manages the new OSA OTA consortium.

Any company may join the OTA consortium

Any OTA consortium member company, or team, may bid on OTA solicitation.

Government Other Transactions Authorities provide oversight. AFRL Rome oversees the new OSA OTA.

OSA Virtuous Cycle

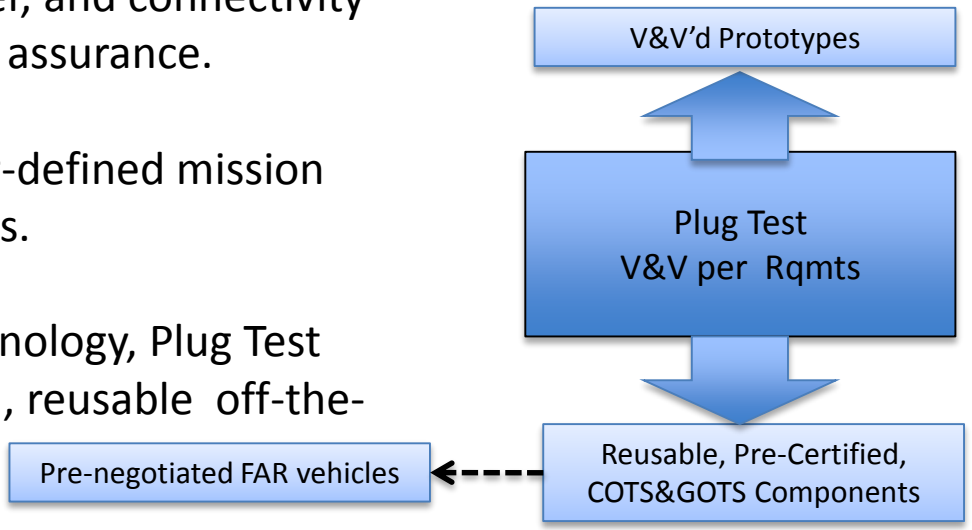
"Plug Test" is a best practice for performing robust Validation and Verification V&V of interoperability and functionality of a particular "plug-and-play" component in context with a particular information system (IS).

A virtual, federated, Plug Test harness should include robust reference implementation (RI) of the standard stack of interest. Successful integration with the stack is a measure of interoperability.

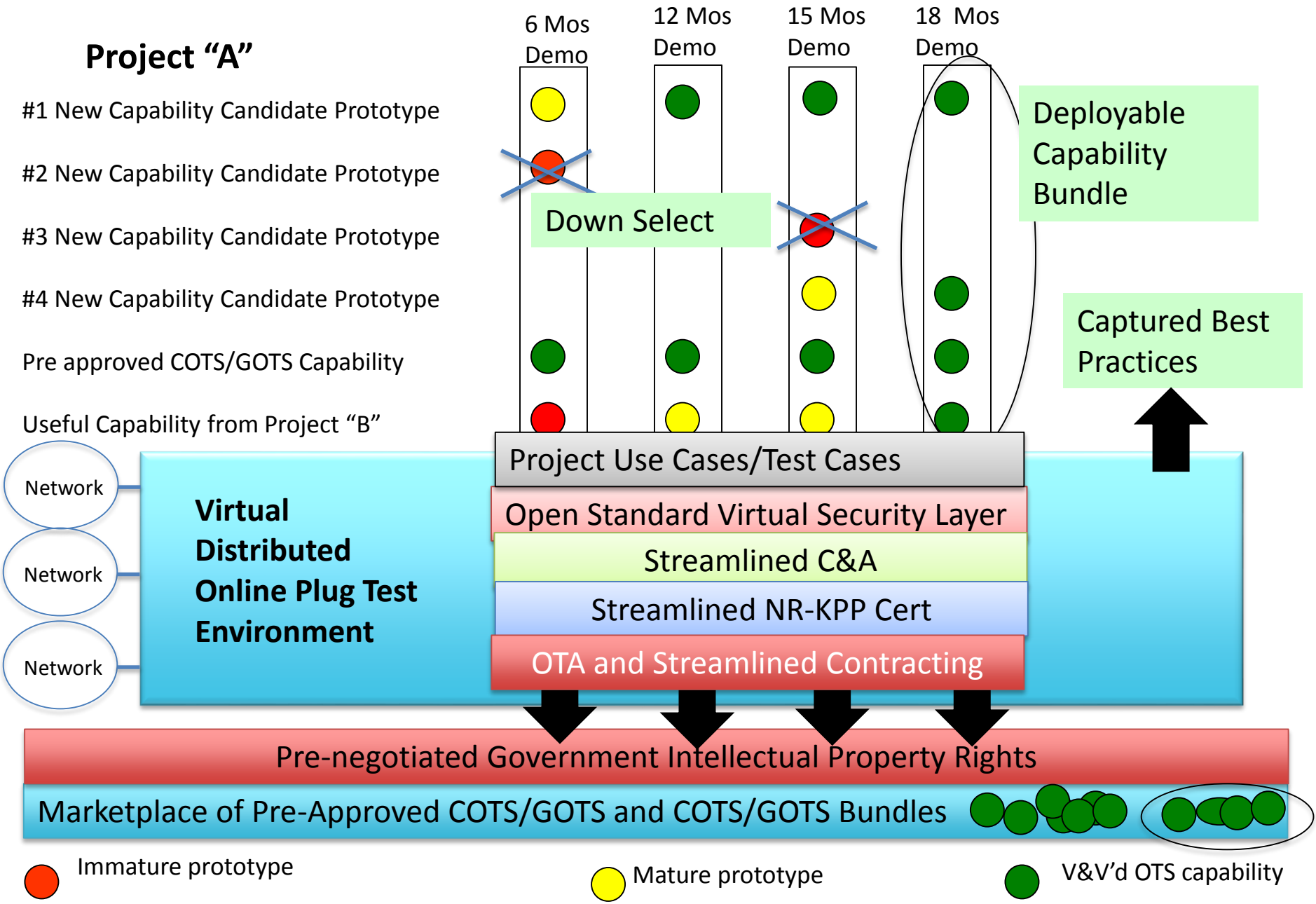
Ideally, RI includes a A&A'd virtual security layer, and connectivity with various networks. Tested artifacts inherit assurance.

The Plug Test cases include simulations of user-defined mission threads including interoperability requirements.

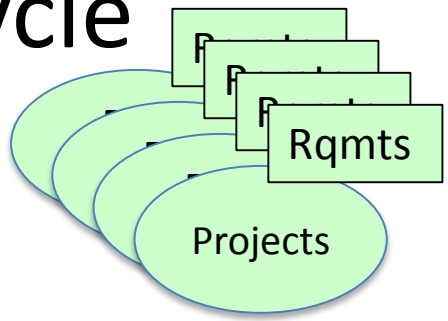
In addition to V&V of maturing prototype technology, Plug Test process delivers pre-approved, easily procured, reusable off-the-shelf components.



Ideal Plug Test Process



OSA Virtuous Cycle

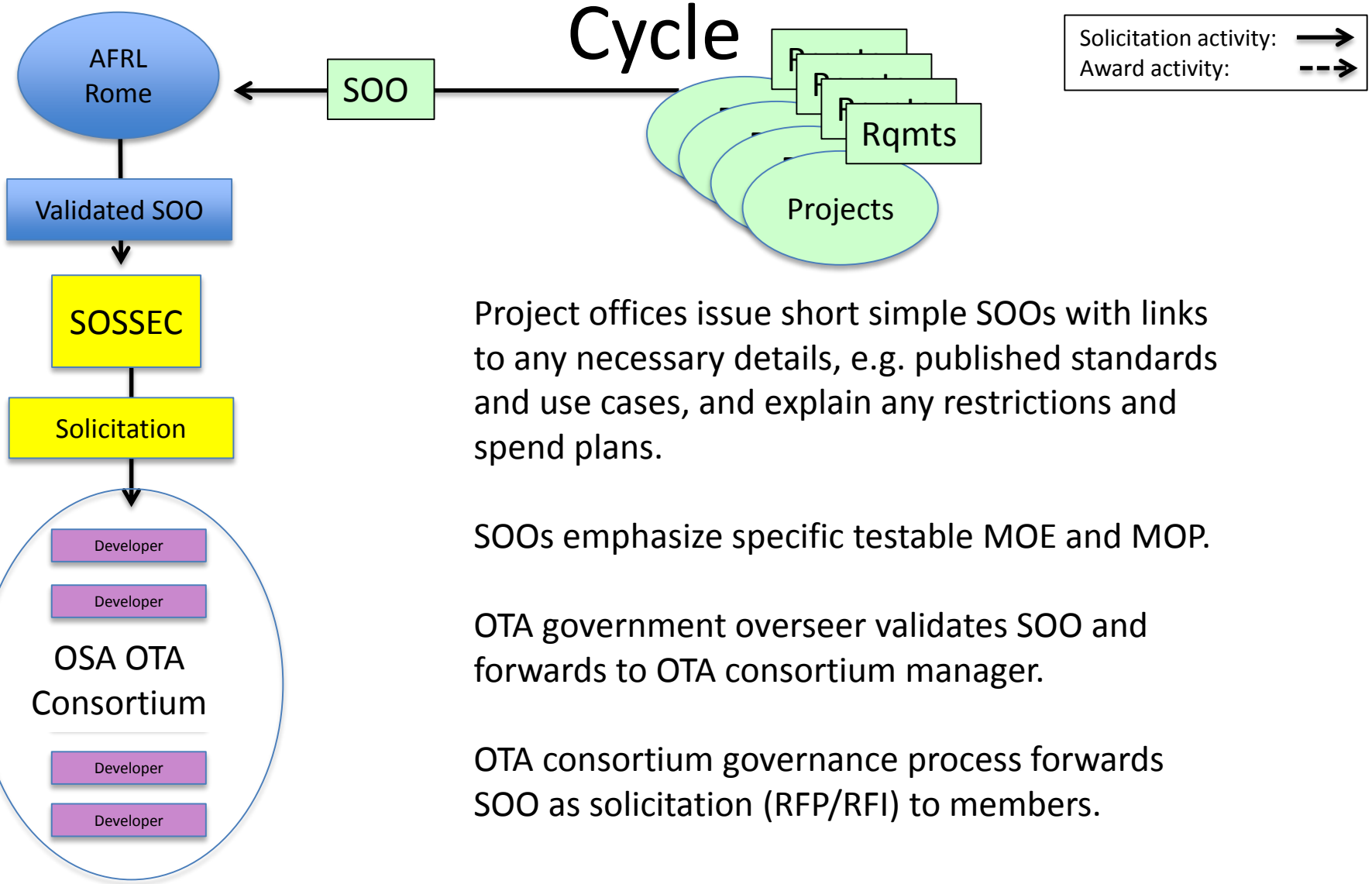


Theoretically, independently funded acquisition projects can all benefit from mutual investments in open standard, plug-and-play capability.

However, the Defense acquisition process is not designed to pool similar requirements, investments, and/or test and certification resources.

OSA provides services and utilities that make collaboration and parallelization across and within projects measurably convenient, efficient, and effective.

OSA Virtuous Cycle



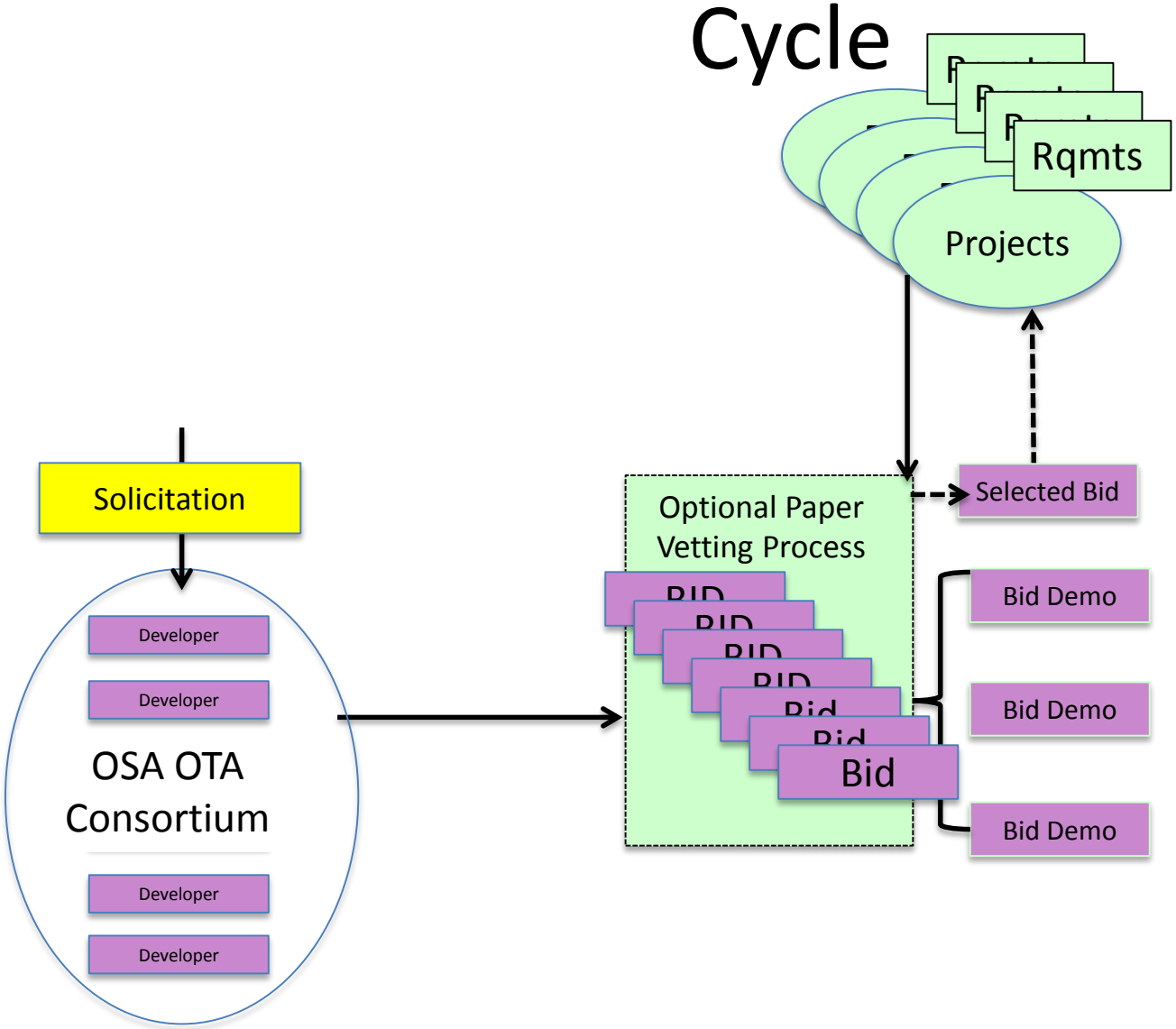
Project offices issue short simple SOOs with links to any necessary details, e.g. published standards and use cases, and explain any restrictions and spend plans.

SOOs emphasize specific testable MOE and MOP.

OTA government overseer validates SOO and forwards to OTA consortium manager.

OTA consortium governance process forwards SOO as solicitation (RFP/RFI) to members.

PFP Virtuous Cycle



Consortium members respond with bids that include very brief white papers that describe existing pluggable, testable technology.

The sponsoring project may choose to eliminate or select some of the bids per white papers.

Remaining bidders prepare demos for PlugTest

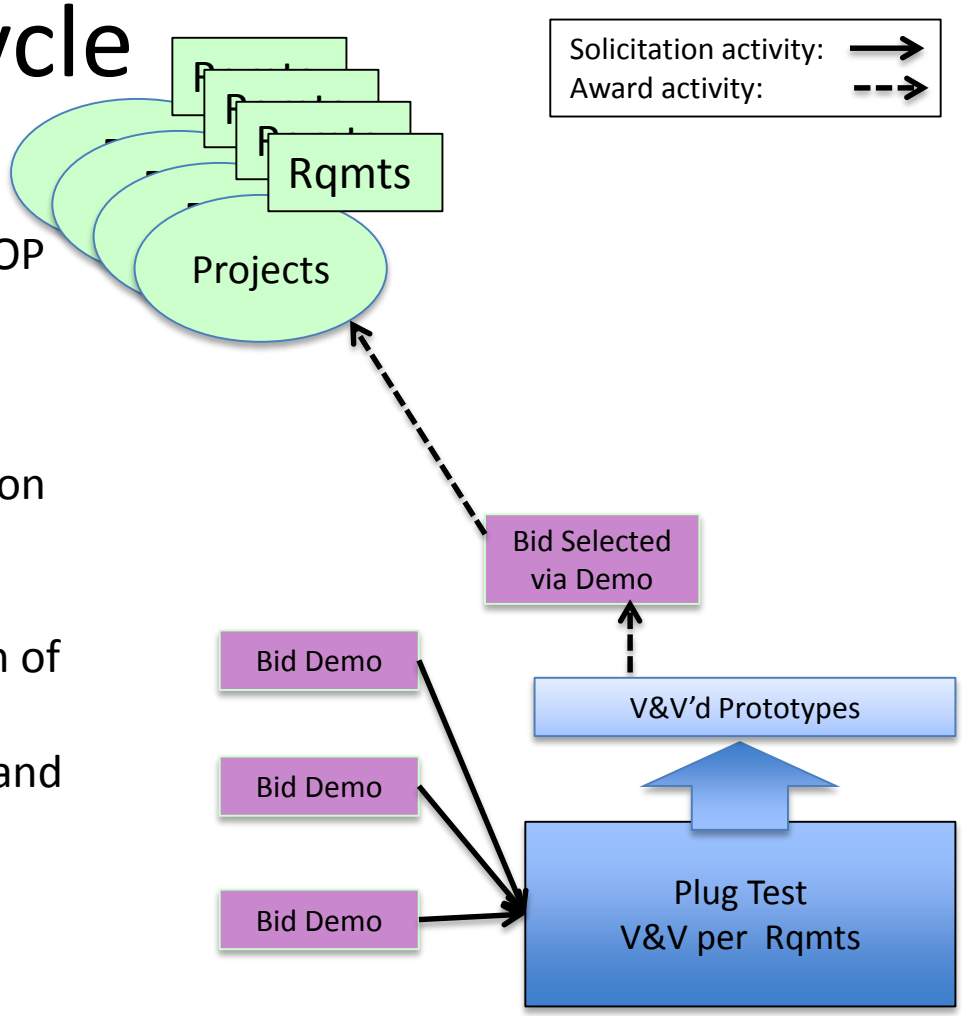
OSA Virtuous Cycle

Plug Test test cases align with the MOE and MOP specified in solicitations regarding cost, performance, and schedule.

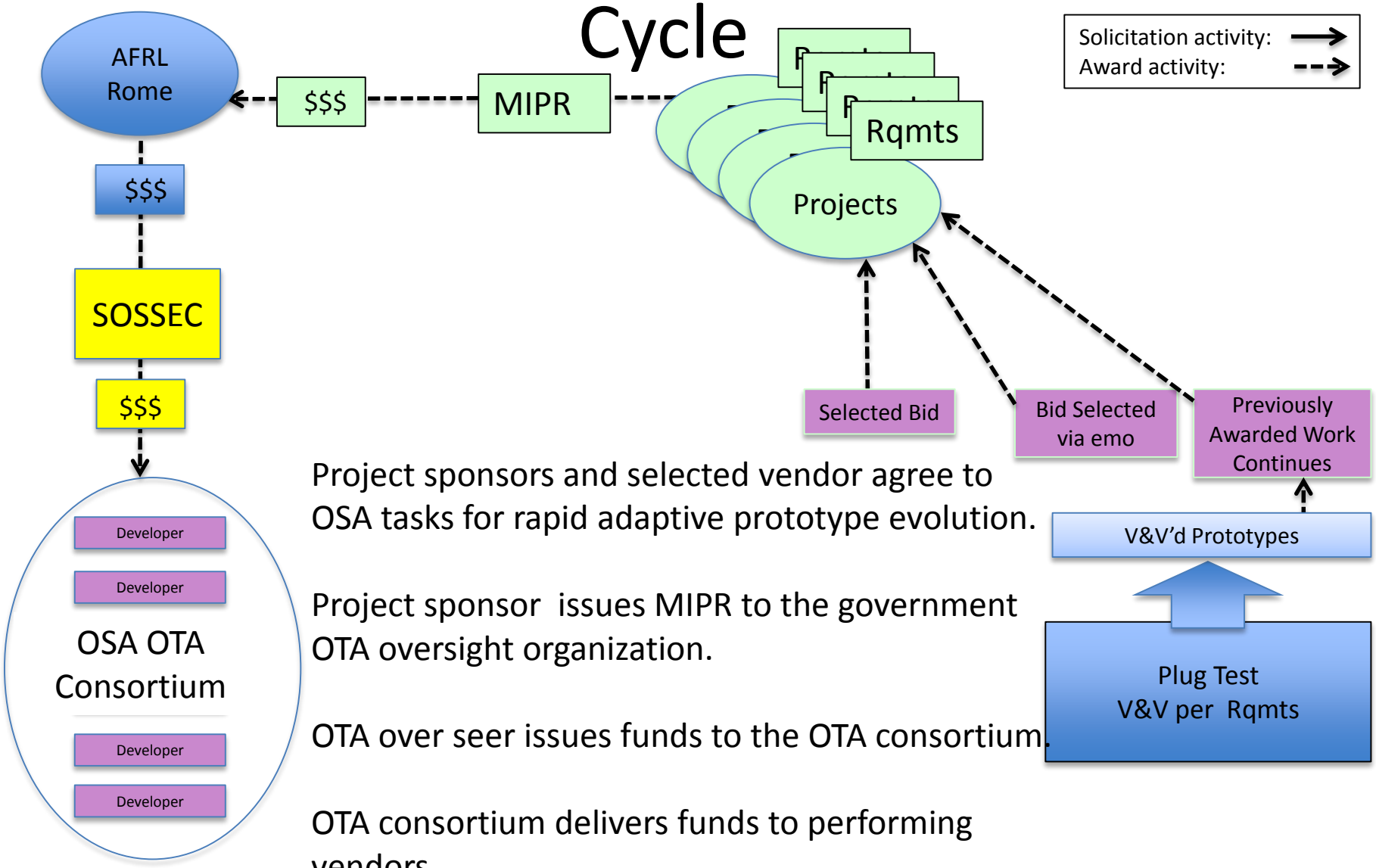
Plug Test process is pre-approved by certification authorities.

Plug Test process provides objective evaluation of demonstrated offerings in terms of technical conformance, functionality, and performance and lifecycle tech refresh costs and speed-to-capability.

Project sponsors can select performers and technologies immediately and objectively.



OSA Virtuous Cycle



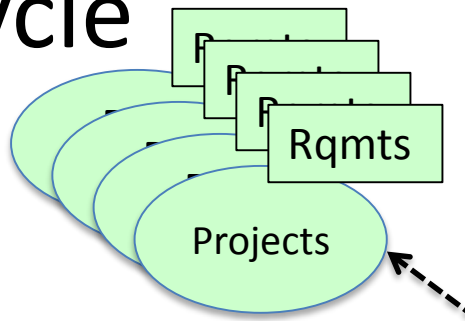
Project sponsors and selected vendor agree to OSA tasks for rapid adaptive prototype evolution.

Project sponsor issues MIPR to the government OTA oversight organization.

OTA over seer issues funds to the OTA consortium.

OTA consortium delivers funds to performing vendors

OSA Virtuous Cycle

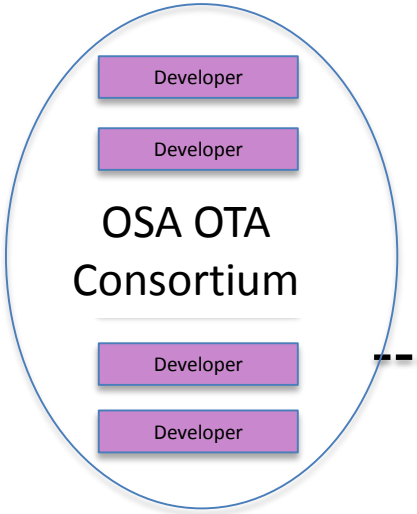


Solicitation activity: →
Award activity: ⇢

Awarded vendor continues rapid adaptive engineering activity per PFP SOO

Plug Test is used to perform V&V of specified funded tasks

When Plug Tested off-the-shelf capability reaches sufficient level of robustness, it achieves pre-certified status and is made available via convenient contract vehicle, e.g. via GSA schedule.



Previously Awarded Work Continues

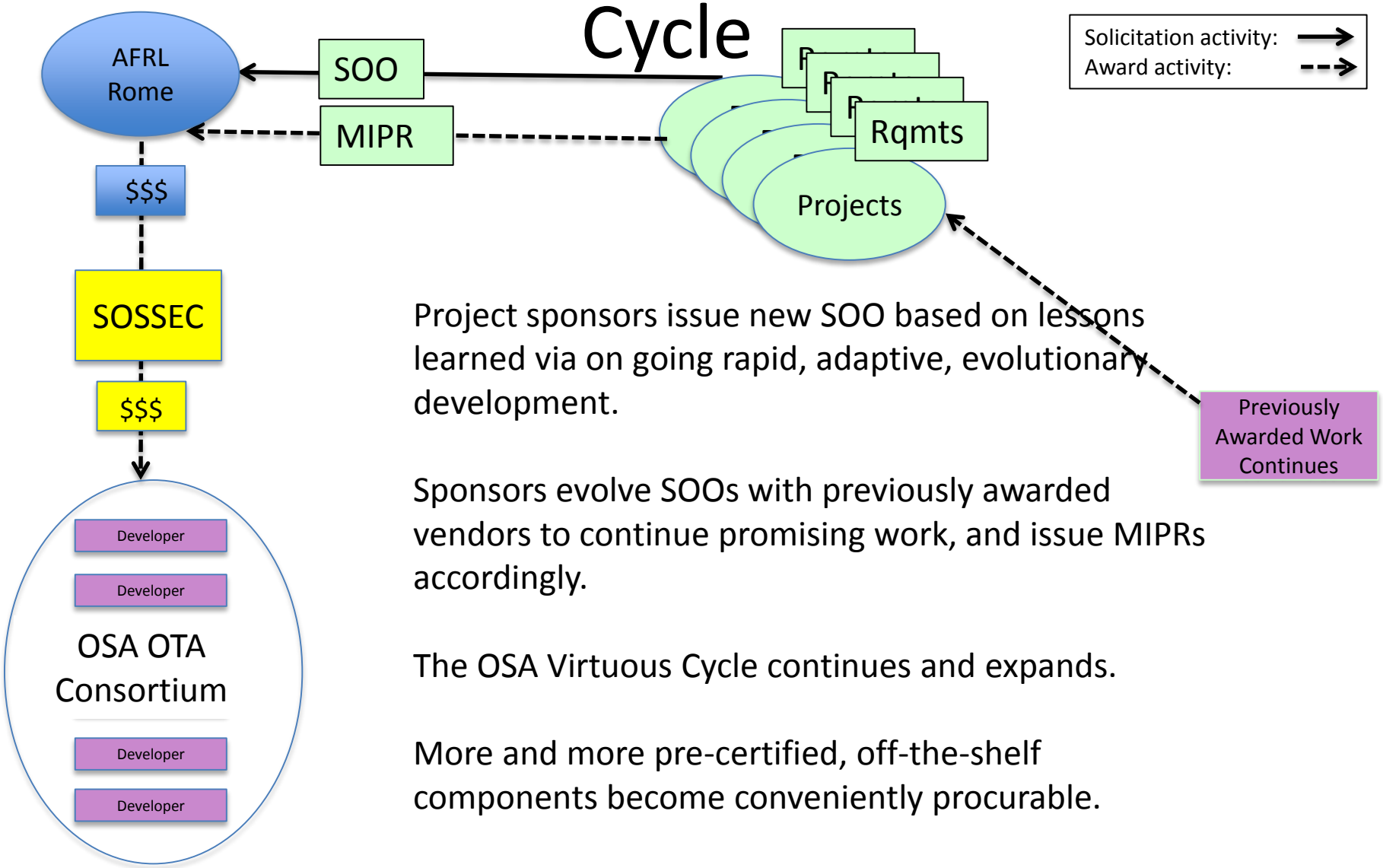
V&V'd Prototypes

Plug Test
V&V per Rqmts

Reusable, Pre-Certified, COTS&GOTS Components

Pre-negotiated FAR vehicles

PFP Virtuous Cycle



Project sponsors issue new SOO based on lessons learned via on going rapid, adaptive, evolutionary development.

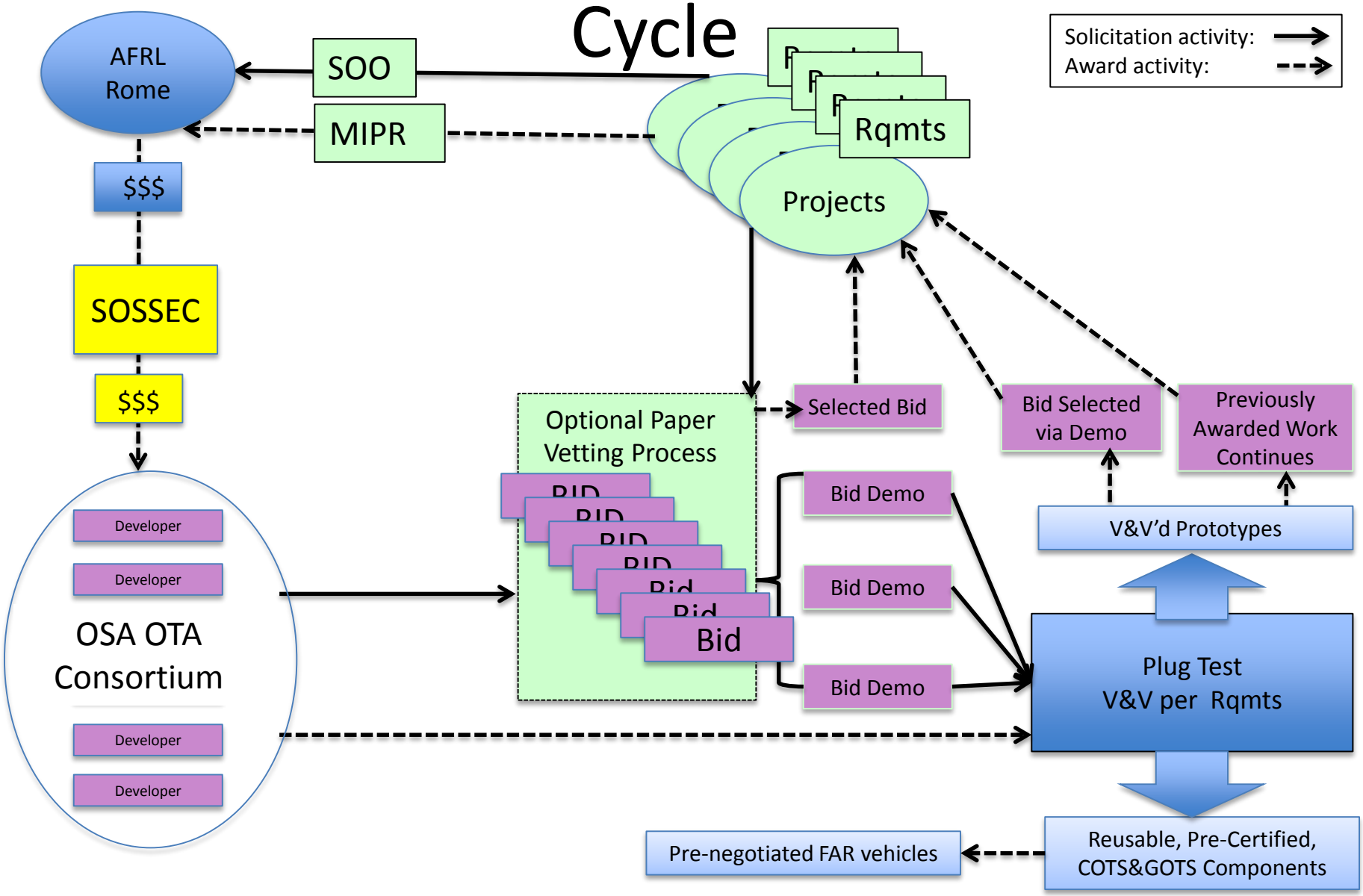
Sponsors evolve SOOs with previously awarded vendors to continue promising work, and issue MIPRs accordingly.

The OSA Virtuous Cycle continues and expands.

More and more pre-certified, off-the-shelf components become conveniently procurable.

Best practices get captured and delivered via various OSA training and education venues and artifacts.

OSA Virtuous Cycle



OSA Virtuous Cycle